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ABSTRACT

In an effort to assess the economic impact of the Florida Community College System (FCCS) on the state, two theoretical models were utilized. The first model determines the FCCS's total expenditures in supplies and services, and then applies to these figures a mathematical multiplier to account for the additional economic business generated by re-spending within the economy. The second model utilizes human capital theory to measure the increased individual income earned and spent by former community college students as a result of having attended college. Study results include the following: (1) the 30,000 employees of the FCCS's 28 colleges receive over $480 million in wages, of which over $100 million are spent on home equity, and over $200 million on retail purchases within the state; (2) in support of their educational programs, the FCCS purchases $160 million in goods from Florida businesses; (3) direct purchases from Florida businesses attributed to the FCCS total over $470 million; (4) "second round" effects include creation of at least 42,000 additional jobs statewide as a direct result of college spending, and local businesses make $106 million in local purchases to support their sales to the college; (5) individuals educated in the FCCS are estimated to earn $3,000 more annually than high school graduates, placing total additional earnings of students in the work force in 1989-90 at more than $400 million; and (6) in total, the FCCS is estimated to generate more than $2 billion in business volume and to account for up to 150,000 jobs in the Florida economy annually. Detailed data tables and references are included. (PAA)

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The Economic Impact of the Community College System on the State of Florida

by

Scott M. Weitzman

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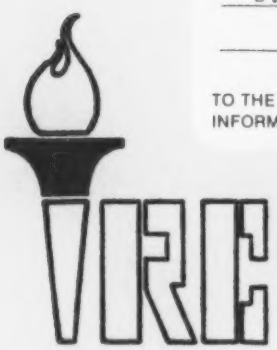

Inter-Institutional Research Council
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Preface

Florida's Community Colleges have, during the time since 1957 when the Community College Council's Master Plan was implemented, demonstrated a tremendous effect upon the state of Florida. This study attempts to quantify that impact in economic terms -- dollars and cents -- and to demonstrate that the dollars spent on the education of Florida's people have very excellent short term benefits as well as long term improvements of the lives of Florida's citizens in general.

This excellent analysis was carried out by Mr. Scott Weitzman, a former researcher at Broward Community College, and currently a graduate student at New York University. Scott was assisted by Ted Wright, Bruce Judd and Jim Wattenbarger and we all share in responsibility for the results of the study.

The Florida Community College Interinstitutional Research Council (IRC) has carried out research relating to Florida's Community Colleges since 1969. We are convinced that this is one of the most important studies that has been completed.

James L. Wattenbarger

Gainesville, Florida

September 1991

EXECUTIVE SUMMARY

The purpose of this report is to estimate the economic impact of the Florida Community College System on the State of Florida. The overall model utilized herein to quantify the positive and negative impacts is a combination of two established frameworks. A heavy reliance is on the methods established by John Caffrey and Herbert Isaacs in their impact study guidebook, *Estimating the Impact of a College or University on the Local Economy*. The Caffrey and Isaacs guidebook provides models which produce a most complete measure of the many direct and indirect effects which college expenditures have on the local economy. Basically, the Caffrey and Isaacs models take college expenditures for supplies/services and, using multipliers, estimate the ripple effects and ultimate economic impact which those expenditures have on the local economy. Additional business volume and jobs created by this spending are calculated. The other method used to estimate the 28 community colleges' economic impact is the application of human capital theory. The human capital theory part of the model measures the increased individual income which former community college students earn (as opposed to what they would have earned without a college education) and estimates the amount of added personal income contributed to the State economy.

Before proceeding to the quantifiable aspects of the System's impact, one should note that many immeasurable qualitative benefits are bestowed upon the State by the 28 colleges. While it is impossible to add up these positive influences into a meaningful numerical figure, the effects on the socioeconomic condition of the State are surely as important as the quantified estimates presented. Therefore, one should not view the following findings as the extent to which the System exerts

positive influence on the lives of many Floridians. The numerical figures are only one element of the entire story.

State tax money is appropriated to the Community College Program Fund (CCPF) on the order of about $455 million per year. Additionally, nearly $28 million in federal funding flows into Florida to support the System. The State funding figure accounts for about five percent of the total taxes collected in Florida. With this minor portion of the local tax base (and additional funds from other sources), the 28 community colleges directly employ about 30,000 Florida residents and pay out over $480 million in wages to these individuals. In turn, college employees spend over $100 million on home equity and over $200 million on retail purchases within the State. For supplies and services in support of their educational programs, the 28 colleges directly purchase another $160 million from Florida businesses. In all, the community colleges are responsible for over $470 million in direct purchases from Florida establishments.

In addition to the $470 million of direct expenditures, "second round" effects are felt throughout the local economy. **At least 42,000 additional jobs are created in various industries across the State as a direct result of the colleges' spending practices. Local businesses make $106 million in local purchases to support their sales to the colleges and another $330 million in business volume is added to the Florida economy as a result of these various financial transactions.** If direct and indirect effects are combined, **the System is seen to be the source of more than $900 million of the State's overall business volume.**

Other than the re-channeling of cash to create additional jobs and purchases within the State, the education of individuals also has a profound positive effect on

Florida's economy. In Florida in 1979, individuals who attended college for one to three years earned $1,946 more per annum than individuals who never attended college. Adjusting the above earnings-differential to account for the relative rise in salary levels in the State from 1979 to 1989, it is calculated that **college-educated individuals presently earn about $3,000 more than high school graduates. With two-thirds of the System's student body returning to school in a given year, and nearly 430,000 students attending Florida community colleges in 1989-90,** it is calculated that **approximately 140,000 ex-students re-entered the workforce full-time in the past year. These individuals' increased earnings level amounts to about $400 million more than it would have been had they not attended college.**

The totality of institutional expenditures and increased individual earning and spending power has the effect of adding more than $1.3 billion in business volume to the Florida economy. About 72,000 jobs are also created in the State, accounting for 1.5 percent of Florida's laborforce. If the multiplier formulae were applied to the increase in human capital development attributable to the colleges, it is estimated that another $500 million in business volume and 38,000 more jobs would be added to Florida's economy. Indeed, if one could quantify some of the Colleges' monetary contributions which were not accounted for in this study (insurance payments to local insurance and health maintenance organizations, out-of-state resident students' local expenditures, the expansion of the Florida credit base which results from the savings and investments of employees and former students), **the 28 community colleges may be seen to generate as much as $2 billion in local business volume and as many as 150,000 jobs in the Florida economy.**

INTRODUCTION

This study will seek to assess and measure the contributions the Community College System makes to the economy of the State of Florida. This analysis will be accomplished through two avenues. One gauge is the use of multipliers to measure the ripple effects of the 28 colleges' spending on the Florida economy while the other is a measurement of the human capital development the System contributes to the State economy. Specifically, the study will quantify these economic impacts through the use and manipulation of existent models (most notably, John Caffrey and Herbert Isaacs' American Council on Education guidebook, *Estimating the Impact of a College or University on the Local Economy*) and the application of human capital theory. One of the underlying tenets of the quantitative aspect of this analysis is the assumption that any funds injected into the State economy, either directly, through the purchasing of goods and supplies from in-state retailers/wholesalers or indirectly, as a result of the ripple effects from paying employees' salaries which are in turn spent for consumer goods in Florida all have multiplier effects for the economy and produce larger magnitudes of business volume than the original amounts considered.

> When a college and its personnel make expenditures in the local area, part of those expenditures become wages, salaries and profits that are again spent locally.... This process is repeated over and over until all of the original expenditures leave the locality. The figure that represents the continued respending and thus the increased value to the local community of each dollar originally spent is called the multiplier. (Leslie and Brinkman, 1988, p.90)

The other chief quantifiable measure applied in the study relies on human capital theory. This theory recognizes that investment in the education of an individual is akin to investment in property or equipment--- future returns are

expected. In other words, the Community College System educates people who in turn earn more money than they would have without that education. Indeed, those educated individuals spend more money on consumer goods in Florida, have a greatly reduced possibility of becoming unemployed and dependent on State income maintenance programs for support, and have ripple effects on the State economy on the same order as the multiplier effects discussed above.

Note this the study will focus on the actions of the 28 community colleges but will not take into account the administration of the Community College System. The focus of the study is to measure the impact the presence of the 28 educational institutions exerts on the State of Florida, not the existence of a state agency.

REVIEW OF THE LITERATURE

Over the past twenty years, the number of studies attempting to quantify and assess the impact that institutions of higher learning have on their local economies has been growing steadily. Indeed, some institutions have even been updating and re-assessing their initial local impact studies over the course of time. Additionally, recent and past economic impact studies have attempted to estimate the perceived benefits and/or negative impacts of projects such as building new sports arenas, legalizing casino gambling, simulcasting horse races and allowing off track wagering, and limiting fishing harvests in certain areas. The common thread running through all of these studies is the authors' attempts to present fair analyses which take into account both positive and negative factors while contributing to the planning and evaluation of the funding of such projects.

The evolution of economic impact studies has not been consistent however. Before the publication of Caffrey and Isaacs' guidebook, most work concerning the economics of education closely followed work done by the pioneers of human capital theory, Theodore Schultz and Gary Becker. In the late sixties, Lee Hansen and Burton Weisbrod set forth the hypothesis that public education has a regressive effect on the poor people in a community (in other words, families in lower income brackets paid more taxes and received less in educational returns relative to those in higher income classes). In time however, the notion that educational institutions bring positive impacts to their host community (rich and poor alike) prevailed.

The multitude of current impact studies focus primarily on the models developed by Caffrey and Isaacs in their aforementioned guidebook. Some studies rely on human capital theory to analyze and quantify the social benefits an educated populace has on the local area while some studies combine both methods. Still other studies have used original and unique applications of various theories to determine

economic impact. Without question, the guiding light for economic impact studies concerning institutions of higher learning and their local communities is the Caffrey and Isaacs guidebook. Since its publication in 1971, a veritable plethora of impact studies have been performed on the collegiate level, the majority of which have closely followed the Caffrey and Isaacs guidelines. If one looks closely at the various studies completed (the appendix of Leslie and Brinkman's *The Economic Value of Higher Education* presents an excellent compilation and analysis of 39 different studies), it seems that a preponderance of them have been done at the community college level. (As a matter of fact, 20 of the 39 studies presented in Leslie and Brinkman's appendix are community college studies.)

It would seem that community colleges across the nation have felt the need to document their positive impacts on their host communities in order to compete with larger universities for local funding. A prevailing attitude (which seems to be diminishing lately) placing community colleges second in line behind four-year institutions for local funding may have forced two-year schools to pioneer in this area of research. While estimating the economic impact of the Long Beach Community College District on the Los Angeles area, William N. Littlefield notes the following:

> The importance of the community college is heightened during periods of economic decline when unemployed workers can upgrade and learn new skills in an educational system at little or no out of pocket cost. Quite unintentionally legislative bodies may hamper the growth of productivity in their own state and that of the entire economy by limiting funds and/or enrollment.... Limiting the ability of the educational system to create human capital will likewise contribute to declining productivity. (Littlefield, 1981, p.33)

If one were to classify the different types of economic impact studies, three distinct categories emerge. The first breed of studies are those which measure direct

monetary effects on the local economy and then use multipliers to estimate second round economic effects. These studies usually follow the Caffrey and Isaacs models with a few pieces deleted and/or a few pieces added. A second way of estimating the economic impact of postsecondary schools is the use of human capital theory. By measuring the increases in individual and societal productivity that are associated with increased levels of education, an institution can approximate the extent to which they contribute to this increased level of business volume and efficiency. The third genre of studies are those which exactly measure monetary contributions to the local community and analyze the spending patterns of college students and employees through extensive surveying. This third type of study does not use multipliers to estimate respending in the local economy, but relies on the accuracy of its tangible findings and other original techniques of analysis to present a reliable impact figure.

A prime example of the third type of impact study is the University of Virginia's recently completed study, *The University of Virginia's Impact on the Charlottesville Metropolitan Area*. Having already completed two previous impact studies in 1973 and 1981 (both of which used multipliers and followed Caffrey and Isaacs extensively), the researchers decided to try something different. No multipliers were used and some of the estimating techniques that relied on surveying (an example being the surveying of local businesses to ascertain local university-related business volume) were also omitted in the 1990 study. A most noteworthy technique utilized in the University of Virginia study was the application of the Regional Input-Output Modeling System (RIMS II) to estimate local non-housing expenditure patterns for college employees. The RIMS II data are gathered through sampling (akin to census data but updated more often) and are available from the U.S. Bureau of Economic Analysis for a fee.

Because no indirect economic impacts are calculated, the Virginia study differs from either of the other two types of impact studies. A future Florida impact study following the format used by Virginia's Center For Public Service staff is

definitely something which should be considered. The presentation of exact figures and the avoidance of estimation multipliers may more closely approximate the true economic impact of the System.

Not only economic impact studies, but studies on the efficacy of higher education have attempted to measure increases in human capital formation resulting from higher levels of education. There are various techniques which have been used in this area. From calculating internal rates of return for individuals with different education levels and comparing the differences, to calculating rates of return to society in general and simply measuring the increased income levels associated with individuals who are more educated than others, human capital is measured. These techniques are viable, but do not tell the entire story. It is for this reason that the present study combines the Caffrey and Isaacs model (measuring direct and indirect impacts resulting from college-related expenditures) with human capital theory in order to present a more complete picture of the Florida Community College System's impact on the Florida economy.

Dwight Davis' series of reports on the economic impact of Miami-Dade Community College on Dade County is a good example of the combination technique. Indeed, "The Economic Impact of Broward Community College on Broward County" (the study most nearly followed in the present analysis) closely followed Davis' structure with a few additions and deletions. Basically, Davis used whichever parts of the Caffrey and Isaacs model that seemed appropriate, and added the human capital piece to it. The chief difference between the Miami-Dade study and the Broward study is the use of the bottom range of multipliers and the inclusion of an estimate for negative impact in the latter. The present study follows the Broward study almost piece by piece.

In addition to educating persons of all ages and sending those individuals back into the workforce, the 28 community colleges inject substantial sums of money into

the State economy through the purchasing of supplies and paying out wages to faculty and staff who live in Florida. It is the financial interaction the System has with the Florida economy and its subsequent effects which are measured in this study.

RESEARCH METHODOLOGY

This report will relies heavily on both human capital theory and pieces of the Caffrey and Isaacs model. Following is a step by step description of the data sources and modes of analysis used to estimate the ultimate impact of the Community College System on the economy of Florida.

A) The System's Source of Funds

The majority of economic impact studies focus on local geographic areas to which funds flow from sources originating outside the locality. In this study, the area considered (Florida) produces most of the funds through tax dollars generated in Florida. The federal funding of the System represents the only funds which would not have been present in the Florida economy if the System did not exist. While the study will not consider the State funding of the System as "new" money injected into the economy, the subsequent multiplier effects of the individual colleges' financial transactions will be considered the System's impact.

The State Board of Community Colleges (SBCC) provided the *annual financial reports* for all 28 Florida community colleges. From *exhibit C* of these reports, the amount of State funding garnered from tax revenues collected and the amount of "new" money funding originating from outside the State (federal grants and the like) was determined.

B) Annual Salaries Paid by the Community Colleges

The total amount of salaries paid out to the 28 colleges' personnel is determined along with the number of jobs the System creates at the colleges. These data were taken from the annual financial reports' *schedule 8. Total personnel costs*

was the starting point here, and all non-salary expenses (such as social security contributions, medicare expenses, disability and retirement insurance funds) were backed out. The reason for this "backing out" is that the models will quantify and manipulate the tangible dollar amount community college employees take home and spend in the local economy. Since forms of compensation like fringe benefits are not transferred directly back into the economy by consumers, they have been omitted.

The exact number of community college employees was gathered from the SBCC's *Report for Florida Community Colleges Fact Book*. A classification of the System's employees by general category (such as teaching, professional, administrative, etc.) is presented in Table 2.

C) State Residents Employed by the Colleges

The percentage of college employees who reside outside of the State will be backed out of the total number of college employees mentioned above and the salary figure in "B" will be adjusted accordingly here. One of the advantages of researching a statewide impact study on a peninsula stretching nearly 500 miles into the Atlantic Ocean came in handy here. Obviously, the employees of the 20 community colleges located in the central and southern sections of Florida do not commute from the Bahamas or Cuba. Thus, a few simple telephone calls provided a gross estimate of the proportion of employees at the borderline colleges found in the panhandle and northern sections of the State (Pensacola, Okaloosa-Walton, Gulf Coast, Chipola, Tallahassee, North Florida, Lake City, and FCC @ Jacksonville) who reside outside of Florida. The overall percentage of out-of-state employees relative to the total employee pool is almost negligible (less than 5 percent).

D) In-State Expenditure by Florida Resident Employees

The model will assume that consumers spend a specific portion of their disposable income on both non-housing commodities and on housing equity in Florida. These percentages will be applied to the total salary figure for Florida residents ("C"). The resultant amount is money injected back into the Florida economy. The proportions applied to the total salary figure are found in the Caffrey and Isaacs guidebook. While it is apparent that Florida residents do not make 100 percent of their retail purchases within the State, it is estimated that the amount spent outside the State is more than offset by out-of-state resident expenditures in Florida. Obviously, a tourist laden economy in an area such as Florida imports substantially more money from out-of-state individuals than it exports through State residents. The assumption that individuals spend 90 percent of their take-home pay in-state (60 percent on non-housing retail purchases and 30 percent on home equity) therefore seems even more appropriate for Florida's particular situation than for the "average" community for which the assumption was originally estimated.

E) In-State Expenditure by the 28 Colleges

All expenditures for supplies for educational programs and institutional support are multiplied times the proportion of purchases made from Florida business enterprises. Again utilizing schedule 8 of the annual financial reports, the amount of money colleges spend for supplies and services is determined. *Total current expenses* is used as the base figure with all accounting transfers, fee waivers, and interest payments subtracted out. To this figure is added the *total capital outlay* number from schedule 8. As with employees' salaries, the attempt here is to measure the dollar value of purchases the colleges make in-state. Thus, fee waivers and the like are not included since they do not represent money being injected directly back into the economy.

The total for the System is then multiplied times 80 percent to account for the purchases made from out-of-state firms. The 80 percent figure is a conservative estimate for the entire System's spending practices. Some colleges make as many as 90 percent of their purchases from Florida firms while a few other colleges only spend about 75 percent in-state. It was not possible, given the time frame of this study, to compile and analyze a year's worth of bookkeeping records for all 28 colleges and determine the exact proportion of purchases from non-Florida sources. However, random telephone sampling and the experience of the colleges' purchasing agents and some of the financial analysts at the State Board in Tallahassee has insured that the 20 percent figure for out-of-state expenditures is an overly compensating estimate.

F) Total System-Related In-State Expenditures

The sum of "D" + "E."

G) Jobs Created in Florida as a Result of the Operations of the System

Caffrey and Isaacs calculated multiplier ranges to be applied to college expenditures which estimate the eventual impact on the economy in terms of new jobs created. The appropriate multiplier figure for an area such as Florida is 0.00009. In other words, it is estimated that for every $100,000 worth of local spending, the System creates nine new jobs in the Florida economy. Thus, the resultant figure in "F" is multiplied times 0.0009. This figure is then added to the total number of persons employed by the System (excluding the individuals working for the State Board of Community Colleges in Tallahassee) which was gathered from the SBCC's Fact Book and presented in "C."

H) Purchases From Local Sources by Local Businesses to Support Their College-Related Business Volume

The magnitude of locally spent money ("F") empowers Florida businesses to make even more purchases ("second round" purchases according to Caffrey and Isaacs) in-state. Multiplier ranges from 0.15 to 0.30 are presented by Caffrey and Isaacs to apply to "F" and estimate these additional local expenditures.

I) Additional Local Business Volume Stimulated by College-Related Expenditures

In addition to the above figure, additional income accrues to other Florida residents as a result of the System's expenditures. This income, in turn, gets spent locally and adds to Florida's overall business volume. The multiplier range here is from 0.6 to 0.8 which is again applied to "F."

J) Total System-Related Local Business Volume

The summation of steps "F," "H," and "I."

K) Foregone Property Taxes Attributable to the Colleges' Tax-Exempt Status

The negative quantifiable impact due to presence of the System is the amount of foregone local property taxes attributable to the colleges' tax-exempt status. From the SBCC, the *site inventory reports* for all 28 colleges were used to determine what properties the colleges own. The appropriate municipalities' millage rates (including all taxing entities within each specific county) were then applied to the assessed value of these properties.

Assessed value was determined at a rate of $40,000 per acre of land. This general approach to assessment leads to an overstated assessed value and negative

impact figure. Attempting to apply the complex assessment formulae which Florida Statutes require the county appraisal offices to use was beyond the scope of this study. Thus, the "$40,000 method" which was originally calculated for Broward County was used for all 28 colleges. Needless to say, most areas of the State have property valued at a significantly lower rate than Southeastern Florida. However, the balance of urban settings such as Tampa, Miami, Orlando, and Jacksonville which may be undervalued using this method counters the overstated assessed values in the many rural and suburban areas of the State. Indeed, the number of campuses in rural and suburban areas greatly overshadows the number of urban campuses in Florida. Thus, an overstated negative impact is presented.

L) Human Capital Theory Model

Census data for 1980 provide figures for the average wages earned by both individuals with only a high school education and those with one to three years of college education in the State of Florida (see Table 5). The wages-earned differential is determined (the difference between the two groups' average earnings) and then multiplied times 1.5 to account for the more than 50 percent rise in salary levels from 1979 to 1989. The rise in salary levels was gathered from data found in the *1990 Florida Statistical Abstract* (Table 6.18). The resultant figure is then multiplied times the number of community college students who leave the System for the workforce each year. The proportion of students who return to each college in a given year was gathered from data in the SBCC's Fact Book. The unduplicated headcount of students enrolled in advanced & professional and postsecondary vocational programs at the 28 colleges was multiplied times one minus the annual percentage of students who return to each specific college in a given year. The System-wide unduplicated headcount information for the year 1989-90 was compiled specifically by the SBCC for this report. Table 6 presents program enrollments by college in the advanced & professional and vocational programs for 1988-89 . The figures presented in Table 6 encompass some duplication across program areas and

result in a larger total number than the true unduplicated enrollment figures which were used in the model's computations. Note that the 1990 census data for these statistics will not be available until 1993, thus the use of the 1980 data which are the most current available.

M) Nonquantifiable (Qualitative) Impacts

This section will focus on many of the pioneering academic programs and management techniques which the 28 colleges create. Energy saving techniques of facilities maintenance, recycling programs, anti-drug policies, and adult education offerings are just a sampling of the positive qualitative benefits the State derives from the presence of the System. Data were compiled from a wide array of sources, including newspaper and journal articles, college fact books and annual reports, and public relations officers at the various colleges.

RESULTS

This section of the report numerically presents the economic impact of the Community College System on the State of Florida. The structure will follow the model along step by step, as it was presented in the methodology section. The calculations made are relatively simple, the difficulty lying in the initial collection and compilation of the data that are subject to the model's estimation formulae. It is important to keep in mind when considering these estimates, that the data used for the direct economic impacts are precise. The calculated indirect impacts, such as additional jobs created in the economy and local purchases made by local businesses in support of their college-related business volume, are clearly estimates. It would be nearly impossible (and maybe even dangerous) to attempt to collect accounting records from every local business which sells goods or services to the 28 colleges and determine which and how many of those purchases they make locally to support those sales: thus, the use of models with multipliers applied to direct impacts and the resulting estimates of the ultimate economic impact the System imparts to the State.

A) The System's Source of Funds

Each of the 28 community colleges has various sources of income. From federal grants and corporate donations to student parking fees and bookstore profits, the colleges generate fund revenues. Table 1 presents the amount of federal funding which goes into each of the colleges' general and restricted current funds in addition to presenting State allocations generated from the community college program fund (CCPF). The System total is about $27.6 million in outside money flowing into Florida from the federal government, and over $455 million in State funding garnered from tax revenues. This figure of nearly $483 million is not the limit of community college funding. Lottery appropriations and other program-specific State, local, and federal funding are not included here. The $482.8 million is just a

general figure which lends some perspective to the situation. Obviously, State appropriations dwarf every other form of college revenue while accounting for over 90 percent of the System's operating funds. Keep in mind that the following figures ("B" through "J") which were gathered to determine institutional expenditures are backed out of the total funding number, a figure larger than the total of CCPF and federal figures mentioned above.

B) Annual Salaries Paid by the Community Colleges

The total amount of salaries paid out to the 28 community colleges' employees in fiscal 1990 was over $484.4 million (see Table 3) after backing out fringe benefits, insurance payments, and other forms of non-cash compensation. Assuming that about 25 percent of that figure goes to pay social security and federal taxes, the System puts about $363.6 million worth of disposable income into the hands of 13,593 full-time and 15,881 part-time employees. The total of 29,474 employees (categorically broken down in Table 2) can be converted into more than 17,500 full-time-equivalent employees among whom the $363 million is distributed.

C) State Residents Employed by the Colleges

More than 95 percent of the 28 community colleges' employees reside in the State of Florida. Subtracting out the 5 percent of non-Florida residents' salaries, the System puts over $345 million worth of disposable income into the hands of 28,000 Florida residents.

D) In-State Expenditure by Florida Resident Employees

The model will assume that 60 percent of individual disposable income is spent on non-housing commodities in the Florida community. Thirty percent of personal income is estimated to be spent on local housing equity while 10 percent

goes to personal savings and out-of-state spending. Thus applying 60 percent and 30 percent for local non-housing and housing expenditures respectively, the result is over $207 million directly spent in Florida on non-housing retail purchases and $103.6 million spent on home equity. A total of $310.9 million is spent in Florida by consumers employed by the 28 colleges.

E) In-State Expenditure by the 28 Colleges

Approximately 80 percent of the purchases for supplies and services made by the 28 colleges go to Florida business firms while the remaining 20 percent are made out-of-state. This proportion can be applied to the System's total expenditures for supplies for educational programs and institutional support (not including wages, interest payments on debt, and other non-business activities). The total amount of these expenditures (see Table 3) is over $203 million. Backing out the 20 percent of out-of-state purchases, one sees that $162.5 million is directly infused into the Florida economy by the 28 community colleges.

F) Total System-Related In-State Expenditures

In order to get a total for direct college-related expenditures, one need only add the figures in "D" and "E" above. The total of over $473 million spent in Florida is a direct result of the 28 colleges' expenditures for salaries to its local employees and services/supplies for the operation of the institutions.

G) Jobs Created in Florida as a Result of the Operations of the System

Clearly, the $473 million directly contributed to Florida's economy does not fully measure the impact the System ultimately delivers. For example, the State and local taxes which are paid by college employees also adds to the economy. Caffrey and Isaacs calculated multipliers to be applied to college expenditures which

estimate the eventual impact on the economy in terms of new jobs created locally. Some researchers estimate that for an economic entity the size of Florida, as many as 25 jobs are created for every $100,000 spent locally. However, preferring to err on the conservative rather than the exaggerated side and keep with the Caffrey and Isaacs multiplier ranges, this study uses a multiplier of 0.00009 (nine jobs per $100,000 in expenditures). Taking the figure from "F" ($473 M) and applying the multiplier, it is calculated that direct college-related expenditures create an additional 42,607 jobs in various industries across Florida.

H) Purchases From Local Sources by Local Businesses to Support Their College-Related Business Volume

The suggested multiplier range here is between 0.15 and 0.30 to estimate additional local expenditures made by Florida businesses in support of their college-related sales. Standing on the middle ground and applying a multiplier of 0.225 to "F" ($473,421,096), it is estimated that $106.5 million in "second round" purchases are made in Florida by businesses whose goods are initially purchased by the colleges in the System.

I) Additional Local Business Volume Stimulated by College-Related Expenditures

The suggested multiplier range for local communities is from 0.6 to 0.8. Taking the middle ground again, a multiplier of 0.7 is applied to "F." The resulting $331 million (70 percent of the $473 million in local college-related expenditures) represents additional sales and purchases made within the State.

J) Total System-Related Local Business Volume

The summation of steps "F," "H," and "I" presents a gross estimate of the additional local business volume ultimately stimulated by the actions of the System. Thus, $473 million of direct college-related expenditures plus $438 million of indirect locally re-spent monies (the sum of "H" and "I") culminate in more than $911 million worth of increased business volume in Florida attributable to the System's financial activities.

K) Foregone Property Taxes Attributable to the Colleges' Tax-Exempt Status

Table 4 displays the assessed dollar value of college-owned properties and the amount of tax revenues never realized by local municipalities and the State. The total amount of lost tax revenues across the State due to the presence of the System was calculated to be about $5.8 million. Note that, according to past research, it is estimated that one out of every three colleges in the United States really pays taxes or performs equivalent services for their host community. Nonetheless, this calculation is made in order to present a clear view of the implications of the Florida statutes which exempt most educational institutions from paying property taxes. Indeed, every institution pays for waste removal and various other community services which are accounted for in the millage rates applied to the assessed values of college-owned lands. This leads to an overstated negative impact in this instance.

L) Human Capital Theory Model

Human capital theory espouses the proposition that the individual decision to acquire additional education is a social investment which results in increased productivity for the economy at large. While sacrificing present earnings to some degree, the individual consumer is investing in education with the presumption that over his or her lifetime he or she will receive increased levels of income which will more than make up for the loss incurred while attending school. This is not to say

that every individual who attends college does so solely to make more money. Personal enrichment, greater appreciation of arts and literature, and an excuse to get out of the house are also elements which persuade people to invest in education. The theory suggests however, that regardless of the motives, the end result is a more socially productive consumer and therefore a more efficient economy. Quantifying these increases in individual productivity and using that as a measure of the impact the Community College System has on Florida's economy constitutes the second major component of this model.

While the preceding steps of the model estimate the eventual impact which the System's expenditures have on the Florida economy, human capital theory quantifies the impact an educated local populace has on the economy. The application of this theory is simple. To begin, the difference in average earnings between individuals with a high school education and those with one to three years of college is determined (from 1980 census data, see Table 5). This figure is then adjusted for the relative rise in salary levels since 1979 (about 50 percent). The resulting figure is multiplied times the number of students with at least one year of education who the 28 colleges send back into the workforce in a given year. This product represents the additional income the Florida economy realizes attributable to community college education in Florida. The total figure symbolizes the collective individualized increases in income for former students of the Community College System.

Table 5 illustrates the average earnings associated with Florida residents by specific age groups, sex, and educational attainment. A weighted average for the male and female groups was calculated to obtain an overall earnings differential of $1,946 per person. In other words, the average Florida consumer who attended college for one to three years and worked over 40 weeks in 1979 earned 15 percent more in wages than individuals who never went to college. Adjusting for the rise in salary levels to 1989, the differential becomes $2,919 in current dollars.

The total unduplicated headcount of students enrolled in advanced & professional (A.A.) and postsecondary vocational programs at the 28 colleges in 1989-1990 was 426,207. The proportion of enrolled credit students who return to the Community College System in a given year is about 67.24 percent. Accounting for the remaining 32.76 percent, it is estimated that the 28 colleges send 139,625 employable individuals with one to three years of college education back into the local labor force each year. Multiplying the earnings differential ($2,919) times the number of newly educated workers (139,625) yields additional local income of over $407.5 million ready to be spent in Florida.

As was noted previously, increased local income leads to increased local spending and a multiple chain of events which leads to a much greater positive impact on the Florida economy than just the $407 million in consumer spending power. Greater tax revenues for local communities and the State in general accrue as a result of this increased income. The multiplier effects calculated for college-related expenditures exert similar power on the increased income level associated with college-educated individuals. Nevertheless, it does not seem entirely accurate to apply the Caffrey and Isaacs principles to this portion of the study. The fact that these educated consumers have spent one to three years attending classes means that the local economy suffered a loss in overall business volume on account of the limited earnings those students had during their education period. Theory suggests that, over an individual's lifetime, the income differential more than makes up for the temporary loss of income incurred. It is for this reason that the differential was calculated for all workers over the age of eighteen as it thus captures the average lifetime earnings of those consumers.

No doubt, the additional $407 million which former community college students earn as a result of their education stimulates the Florida economy to the point of creating thousands of additional jobs and tens of millions of extra dollars in

business volume. The avoidance of multipliers here probably overcompensates for the loss of income incurred during the education years of individuals in Florida, but again, a conservative estimate is infinitely more valuable than an overblown exaggeration. One need only consider the positive impact on local, State, and federal governments through the lowering of unemployment and poverty rates (stimulated by a better educated and more capable community) to get a sense of the additional value educated consumers have to the State of Florida.

M) Nonquantifiable (Qualitative) Impacts

In addition to the positive economic impacts the Community College System has on the State, Florida communities benefit from a variety of public services which emanate from the 28 colleges, their employees and students. Most of these benefits are impossible to quantify in terms of dollars and cents. It is not practical to list every specific instance in which each of the 28 colleges add to the overall social welfare of their local community. But an overview of the types of activities the colleges engage in leads one to think that these immeasurable contributions to the State may equal or exceed the monetary contributions which were estimated in the previous steps of the model.

Pioneering programs in drug abuse prevention, landscaping and pest control technologies, and physical plant energy saving techniques all get transferred back to the local community one way or another. Scholarship funds and tuition/fee waivers for relatives of college employees help make education available to individuals who might otherwise have been unable to afford it. Charitable fund raisers and technology centers help local communities progress. Outreach centers provide services for disadvantaged youths. Mentor programs help to lower drop-out rates at local high schools. Cultural halls and planetariums provide arts and leisure options for local citizens. Continuing and adult education courses provide additional outlets for the local population. All of these activities (which each of the 28 colleges provide

to some extent) lead to a more productive populace and consequently lower poverty and welfare rolls while reducing the crime rate and creating a generally more aesthetically pleasing community.

CONCLUSIONS

The Florida Community College System has a significant positive impact on the Florida economy. The System utilizes more than $450 million in State tax money and nearly $30 million in federal funding to set off a chain of financial transactions which result in more than a billion dollars worth of increased business volume in the State annually. The 28 community colleges directly employ 28,000 Florida residents and put more than $363 million worth of after-tax income into the hands of those individuals. In addition to college employees spending more than $103 million on home equity in-state and $207 million on retail purchases within Florida, the 28 community colleges collectively purchased over $162 million in supplies and services from Florida business enterprises. Not only do these purchases help local businesses thrive and prosper, but they spur on an additional $438 million in local business volume and create another 42,600 jobs in various industries across the State.

If the end result of the 28 community colleges' expenditures for educational services and their subsequent effects on human capital development are tallied, the System is seen to be the source of more than $1.3 billion worth of Florida's overall business volume and is responsible for employment opportunities for over 72,000 individuals. Taking into account the fact that Florida is the fourth largest state in the nation, with more than five million individuals in the labor force, the fact that the System accounts for nearly 1.5 percent of this workforce is significant. And while skeptics may point to the use of taxpayers' money to initiate these final outcomes, the $450 million in State funding accounts for about five percent of the total tax collections made by all of the taxing entities in the State of Florida.

It is also appropriate to keep in mind while viewing these figures, that this study utilized multiplier ranges which were originally calculated to estimate the ripple effects on local economies no larger than an urban city center. The application of

these estimators to Florida, the fourth most populous state in the U.S.A., and a state which does not rely heavily on other states for importing goods and supplies to continue its prosperity, seems to understate the eventual outcomes. Therefore, it would be appropriate to look at the final values as conservative estimates of the economic impact the Community College System ultimately contributes to the State. As Caffrey and Isaacs (1971) noted in their guidebook's introduction, "... the reliability level desired would be one of confidence in order-of-magnitude results rather than in exact dollar figures" (p.3). Certainly, it would be accurate to say that the 28 community colleges create tens of thousands of jobs in the Florida economy and are responsible for sales and spending on the order of more than a billion dollars in Florida each year.

Consider some of the monetary contributions to the local economy which were not quantified here--- insurance payments made in employees' behalf to local health maintenance organizations and insurance firms, in-state revenue originating from non-Florida resident students' expenditures, and the expansion of the local credit base which results from the savings and investments Florida residents make as a by-product of their increased income attributable to the System's educational and financial activities. These transactions account for many additional dollars worth of increased business volume in Florida. Keeping these factors in mind, it is likely that the 28 community colleges generate as much as $2 billion in business volume for the local economy and as many as 150,000 jobs in Florida in a given year.

Table 1

COMMUNITY COLLEGE FUNDING SOURCES

Current and Restricted General Fund Revenues

COLLEGE	FEDERAL	STATE (CCPF)
BREVARD	$928,058	$22,755,032
BROWARD	$416,563	$29,615,427
CENTRAL FLA	$387,962	$8,006,575
CHIPOLA	$577,344	$4,716,120
DAYTONA	$1,634,323	$21,070,196
EDISON	$316,155	$8,873,110
FCC @ J'VILLE	$2,053,597	$40,948,604
FLA KEYS	$212,764	$3,460,560
GULF COAST	$783,167	$7,563,097
HILLSBOROUGH	$594,458	$19,768,406
INDIAN RIVER	$1,407,104	$13,747,917
LAKE CITY	$481,382	$7,614,159
LAKE-SUMTER	$279,566	$4,025,334
MANATEE	$473,424	$10,410,636
MIAMI-DADE	$4,252,465	$83,113,350
NORTH FLA	$304,203	$3,268,744
OKALOOSA-WALTON	$371,341	$7,181,287
PALM BEACH	$361,222	$19,084,801
PASCO-HERNANDO	$62,962	$5,092,343
PENSACOLA	$1,524,692	$23,529,958
POLK	$389,872	$8,058,566
ST.JOHNS RIVER	$285,581	$4,203,763
ST.PETERSBURG	$913,012	$26,817,423
SANTA FE	$1,376,475	$18,955,783
SEMINOLE	$1,032,861	$15,929,936
SOUTH FLA	$950,398	$5,739,977
TALLAHASSEE	$387,161	$10,265,139
VALENCIA	$4,857,813	$21,346,300
TOTAL	**$27,615,925**	**$455,162,543**

Source: State Board of Community Colleges
Note: Federal funding does not include program-specific grants.
Figures are for 1989-90.

Table 2

COMMUNITY COLLEGE EMPLOYEES
Total Number by Category

CATEGORY	FULL-TIME	PART-TIME	TOTAL
EXEC., ADMIN., MGR.	870	63	933
INSTRUCTIONAL	4,535	11,499	16,034
PROFESSIONAL	1,742	526	2,268
SECRETARIAL-CLERICAL	3,106	2,379	5,485
TECH. PARAPROFESSIONAL	1,512	565	2,077
SKILLED-CRAFT	445	127	572
SERVICE-MAINTENANCE	1,383	722	2,105
ALL EMPLOYEES	**13,593**	**15,881**	**29,474**

Source: State Board of Community Colleges (APR89) 1989-90 Fact Book

Table 3

COLLEGE SPENDING
for Educational Programs and Institutional Support

COLLEGE	SALARY EXPENDITURES	NON-SALARY EXPENDITURES
BREVARD	$22,681,177	$12,590,516
BROWARD	$32,677,579	$16,160,694
CENTRAL FLA	$8,787,247	$3,440,389
CHIPOLA	$4,884,591	$2,239,333
DAYTONA	$20,874,559	$7,933,350
EDISON	$10,250,046	$5,605,769
FCC @ J'VILLE	$40,134,934	$13,200,685
FLA KEYS	$3,009,702	$1,451,520
GULF COAST	$8,303,505	$4,425,222
HILLSBOROUGH	$21,124,102	$8,379,810
INDIAN RIVER	$13,194,471	$6,601,107
LAKE CITY	$6,224,943	$3,284,567
LAKE-SUMTER	$3,878,935	$1,439,052
MANATEE	$11,661,179	$4,552,559
MIAMI-DADE	$94,065,874	$36,652,955
NORTH FLA	$2,886,027	$1,341,060
OKALOOSA-WALTON	$8,087,050	$3,701,836
PALM BEACH	$22,612,829	$8,948,801
PASCO-HERNANDO	$5,597,228	$2,946,637
PENSACOLA	$21,911,605	$6,717,230
POLK	$8,564,113	$2,941,637
ST.JOHNS RIVER	$3,983,881	$2,130,748
ST.PETERSBURG	$29,003,137	$11,301,029
SANTA FE	$21,826,912	$7,034,996
SEMINOLE	$15,288,334	$8,606,425
SOUTH FLA	$5,544,808	$2,953,807
TALLAHASSEE	$12,693,669	$4,788,831
VALENCIA	$25,113,158	$11,755,728
SYSTEM TOTAL	$484,865,595	$203,126,293

Source: Annual Financial Reports for Year Ending June 30, 1990
Note: Salary figure is "total personnel expenses" minus non-cash compensation.
Non-salary figure excludes interest and debt payments.

Table 4

COLLEGE-OWNED PROPERTIES

COLLEGE	OWNED ACREAGE	ASSESSED VALUE	UNREALIZED TAXES
BREVARD	429.81 *	$17,192,400	$331,660.99
BROWARD	366.94	$14,677,600	$346,427.96
CENTRAL FLA	120.00	$4,800,000	$91,200.00
CHIPOLA	103.59	$4,143,600	$78,728.40
DAYTONA	395.59	$15,823,600	$378,137.88
EDISON	213.94	$8,557,600	$146,548.29
FCC @ J'VILLE	589.98	$23,599,200	$528,546.56
FLA KEYS	125.51	$5,020,400	$96,010.63
GULF COAST	84.00	$3,360,000	$52,707.00
HILLSBOROUGH	305.51	$12,220,400	$300,162.71
INDIAN RIVER	197.73	$7,909,200	$192,683.93
LAKE CITY	140.51	$5,620,400	$129,894.36
LAKE-SUMTER	70.70	$2,828,000	$56,463.85
MANATEE	200.00	$8,000,000	$124,643.60
MIAMI-DADE	448.31	$17,932,400	$559,290.33
NORTH FLA	97.35	$3,894,000	$89,162.09
OKALOOSA-WALTON	260.43	$10,417,200	$155,196.33
PALM BEACH	272.70	$10,908,000	$252,590.26
PASCO-HERNANDO	360.50	$14,420,000	$370,544.46
PENSACOLA	362.05	$14,482,000	$224,955.01
POLK	231.00	$9,240,000	$183,756.16
ST.JOHNS RIVER	96.46	$3,858,400	$98,007.22
ST.PETERSBURG	363.83	$14,553,200	$313,930.65
SANTA FE	125.00	$5,000,000	$142,030.00
SEMINOLE	200.00	$8,000,000	$173,010.48
SOUTH FLA	86.00	$3,440,000	$59,800.96
TALLAHASSEE	146.21	$5,848,400	$110,028.77
VALENCIA	265.72	$10,628,800	$212,576.00
TOTAL	**6,659.37**	**$266,374,800**	**$5,798,694.88**

SOURCE: Site Inventory Reports

NOTE: Assessed value calculated at $40.00 per acre.

*: Property On Patrick AFB not included

Table 5

MEAN ANNUAL EARNINGS OF PERSONS WORKING 40 OR MORE WEEKS IN FLORIDA, 1980 CENSUS

AGE	EARNINGS 4 YRS.HS	EARNINGS OVERALL	EARNINGS 1-3 YRS.COLL.	EARNINGS DIFFERENTIAL	% INCREASE	NUMBER IN SAMPLE
MALES						
18+	$15,061	$17,371	$17,486	$2,425	16.10%	1,840,216
18-24	$9,307	$9,368	$10,003	$696	7.48%	261,374
25-34	$13,692	$15,357	$15,233	$1,541	11.25%	532,624
35-44	$17,772	$20,644	$20,546	$2,774	15.61%	406,957
45-54	$18,651	$20,883	$21,296	$2,645	14.18%	346,048
55-64	$18,080	$19,747	$22,271	$4,191	23.18%	247,167
60-64	$17,833	$19,089	$22,040	$4,207	23.59%	96,849
65+	$15,948	$18,012	$21,739	$5,791	36.31%	46,046
FEMALES						
18+	$9,294	$9,850	$10,434	$1,140	12.27%	1,092,261
18-24	$5,869	$5,852	$6,231	$362	6.17%	190,350
25-34	$9,259	$10,082	$10,434	$1,175	12.69%	322,153
35-44	$9,955	$10,563	$11,425	$1,470	14.77%	225,674
45-54	$10,140	$10,541	$11,833	$1,693	16.70%	197,126
55-64	$10,461	$10,428	$11,747	$1,286	12.29%	135,021
60-64	$10,441	$10,309	$11,771	$1,330	12.74%	49,562
65+	$10,642	$9,660	$10,483	($159)	-1.49%	21,937
WEIGHTED AVERAGE FOR MALES AND FEMALES						
18+	$12,913	$14,570	$14,859	$1,946	15.07%	2,932,477
18-24	$7,858	$7,886	$8,414	$555	7.07%	451,724
25-34	$12,021	$13,369	$13,424	$1,403	11.67%	854,777
35-44	$14,983	$17,048	$17,292	$2,309	15.41%	632,631
45-54	$15,562	$17,130	$17,862	$2,300	14.78%	543,174
55-64	$15,388	$16,455	$18,553	$3,165	20.57%	382,188
60-64	$15,331	$16,117	$18,564	$3,233	21.09%	146,411
65+	$14,236	$15,317	$18,107	$3,871	27.19%	67,983

Source: U.S. Bureau of Census: Detailed Population Characteristics, Florida (ch.D. part 11)
Note: Earnings differential and % increase are calculated between 4 yrs. HS and 1-3 yrs. college.
Overall figure is for all people regardless of educational attainment.

Table 6

DEGREES AWARDED AND HEADCOUNT OF STUDENTS

Advanced & Professional and Vocational Programs

COLLEGE	DEGREES AND CERTIFICATES AWARDED, 1989	TOTAL PROGRAM ENROLLMENT IN ADVANCED & PROFESSIONAL AND VOCATIONAL PROGRAMS	ANNUAL PERCENTAGE OF STUDENTS RETURNING TO COLLEGE	NUMBER OF STUDENTS SENT BACK INTO THE WORKFORCE
BREVARD	1,554	36,846	78.10%	8,069
BROWARD	1,703	27,207	68.30%	8,625
CENTRAL FLA	607	10,095	59.10%	4,129
CHIPOLA	558	5,163	66.79%	1,715
DAYTONA	1,423	15,217	67.47%	4,950
EDISON	655	9,106	43.50%	5,145
FCC @ J'VILLE	2,037	40,147	69.85%	12,104
FLA KEYS	106	4,089	54.92%	1,843
GULF COAST	516	9,799	32.47%	6,617
HILLSBOROUGH	1,323	19,169	66.36%	6,448
INDIAN RIVER	1,150	23,022	68.76%	7,192
LAKE CITY	1,045	3,321	64.04%	1,194
LAKE-SUMTER	191	2,662	57.86%	1,122
MANATEE	711	10,096	57.86%	4,254
MIAMI-DADE	4,325	36,877	75.92%	8,880
NORTH FLA	334	1,578	60.89%	617
OKALOOSA-WALTON	389	6,815	67.08%	2,243
PALM BEACH	1,528	24,772	66.47%	8,306
PASCO-HERNANDO	403	6,989	61.77%	2,672
PENSACOLA	1,598	18,195	71.40%	5,204
POLK	593	15,018	56.80%	6,488
ST.JOHNS RIVER	196	2,616	50.92%	1,284
ST.PETERSBURG	2,304	29,648	62.78%	11,035
SANTA FE	1,632	13,960	72.65%	3,818
SEMINOLE	1,283	15,120	64.99%	5,294
SOUTH FLA	347	3,514	40.64%	2,086
TALLAHASSEE	1,079	11,389	62.24%	4,300
VALENCIA	1,562	44,914	75.93%	10,811
TOTAL	**31,152**	**447,344**	**67.24%**	**146,568**

Source: State Board of Community Colleges

Note: All data for academic year 1988-1989.

Workforce figure is the product of total enrollment and one minus the percentage of returning students.

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